

WHAT IS CLAIMED IS:

1. An image processing apparatus comprising:
  - a characteristic signal calculation section that calculates a characteristic amount of an input image signal;
  - a conversion process section that executes a conversion process for decreasing a signal amount of a characteristic signal calculated by the characteristic signal calculation section;
  - a storing section that stores the characteristic signal that is converted by the conversion process section;
  - an arithmetic section that reads out the characteristic signal stored in the storing section and executes a predetermined arithmetic operation;
  - a synthesizing process section that outputs a discrimination signal by synthesizing an arithmetic result of the arithmetic section and the characteristic signal calculated by the characteristic signal calculation section; and
  - an image processing section that executes a color conversion process, a filter process and a tone process for the image signal in accordance with the discrimination signal output from the synthesizing process section.
2. The image processing apparatus according to claim 1, wherein the characteristic signal calculation

section comprises at least one characteristic signal calculation section.

3. The image processing apparatus according to claim 2, wherein said at least one characteristic  
5 signal calculation section calculates a linear edge characteristic signal for each pixel of the input image signal, and outputs an edge characteristic signal corresponding to the calculated degree of linear edge.

4. The image processing apparatus according to  
10 claim 2, wherein said at least one characteristic signal calculation section outputs a halftone-screen characteristic signal indicative of presence/absence of a halftone-screen region with respect to the input image signal.

5. The image processing apparatus according to  
15 claim 2, wherein said at least one characteristic signal calculation section outputs an achromatic characteristic signal indicative of a characteristic signal of a chroma saturation of a pixel with respect  
20 to the input image signal.

6. The image processing apparatus according to claim 2, wherein said at least one characteristic  
25 signal calculation section calculates a brightness from the input image signal, expresses the brightness by three values, and produces a halftone characteristic signal and a white background characteristic signal.

7. The image processing apparatus according to

claim 1, wherein the conversion process section executes a conversion process for decreasing a resolution and a signal bit amount of the characteristic signal.

5           8. The image processing apparatus according to claim 1, wherein the image processing section includes a color conversion section that executes a color conversion of the image signal in accordance with the discrimination signal, a filter section that executes a  
10           filtering process in accordance with the discrimination signal, and a tone processing section that executes a tone processing in accordance with the discrimination signal.

          9. The image processing apparatus according to  
15           claim 8, wherein the color conversion section converts RGB image signals to YMCK density signals, using a text region conversion table or a photo region conversion table in accordance with the discrimination signal.

          10. The image processing apparatus according to  
20           claim 8, wherein the filter section executes the filtering process using a high-frequency emphasis filter and a smoothing filter in accordance with the discrimination signal.

          11. The image processing apparatus according to  
25           claim 8, wherein the tone process section executes the tone process using a text region pattern and a photo region pattern in accordance with the discrimination

signal.

12. The image processing apparatus according to claim 1, wherein the arithmetic section reads out the characteristic signal stored in the storing section and  
5 performs an arithmetic operation for only a macro-scoped correction process.

13. The image processing apparatus according to claim 1, wherein the arithmetic section reads out the characteristic signal stored in the storing section and  
10 performs, in accordance with a preset process mode, an arithmetic operation for a macro-scoped correction process and a macro-discrimination process, or an arithmetic operation for only the macro-scoped correction process.

14. The image processing apparatus according to claim 1, wherein the arithmetic section reads out the characteristic signal stored in the storing  
15 section and performs an arithmetic operation for a macro-scoped correction process and a macro-discrimination process.  
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15. An image processing method for an image processing apparatus, comprising:

calculating a characteristic signal of an input image signal;

25 executing a conversion process for decreasing a signal amount of a calculated characteristic signals;  
storing the converted characteristic signals;

reading out the stored characteristic signal and  
executing a predetermined arithmetic operation;

outputting a discrimination signal by synthesizing  
an arithmetic result of the arithmetic operation and  
5 the calculated characteristic signals; and

executing a color conversion process, a filter  
process and a tone process for the image signal in  
accordance with the output discrimination signal.

16. The image processing method according to  
10 claim 15, wherein the predetermined arithmetic  
operation reads out the stored characteristic signals  
and performs an arithmetic operation for only a macro-  
scoped correction process.

17. The image processing method according to  
15 claim 15, wherein the predetermined arithmetic  
operation reads out the stored characteristic signals  
and performs, in accordance with a preset process mode,  
an arithmetic operation for a macro-scoped correction  
process and a macro-discrimination process, or an  
20 arithmetic operation for only the macro-scoped  
correction process.

18. The image processing method according to  
claim 15, wherein the predetermined arithmetic  
operation reads out the stored characteristic  
25 amount signal and performs an arithmetic operation  
for a macro-scoped correction process and  
a macro-discrimination process.